The Challenge of Our Time: Achieving High Vaccination Coverage During the COVID-19 Pandemic

A Behavioral Segmentation Approach to Prioritize Groups and Tailor Solutions

February 2021

surgo VENTURES

EXECUTIVE SUMMARY

How can we prioritize scarce time and resources to propel the COVID-19 vaccination effort to achieve coverage rates as high as 80-90% for community immunity? Surgo Ventures conducted a nationally representative survey of 2,747 U.S. adults to answer that question.

Previous studies have shown why people don't want to get the vaccine—concerns around safety, equity, and efficacy—yet there is limited guidance on which barriers to focus on and how they coalesce within individuals. We show how psychobehavioral segmentation—a technique drawn from marketing which divides people into groups based on their behaviors, motivations, beliefs, and other factors—can provide this insight to guide timely, targeted solutions. Our survey found that 40% of Americans are highly likely to get the vaccine, with the remaining 60% falling into less likely segments with a variety of concerns and barriers shaping their likelihood. But by digging deeper into that 60% of Americans—specifically by prioritizing three psychobehavioral segments (43% of Americans) who we identified as persuadable—we believe we can increase COVID-19 vaccine uptake as we need to in order to overcome the pandemic. Our approach goes beyond parsing people solely based on demographics to look at the heterogeneous barriers that truly drive someone's intention to get vaccinated. This report provides time- and resource-pressed decision makers with a clear guide on where to focus to increase COVID-19 vaccination coverage, and suggests evidence-based ideas for how to reach these segments.

WHY WE NEED A NEW APPROACH TO PROMOTING COVID-19 VACCINE UPTAKE

Across the country, communities are struggling with the unprecedented challenge of COVID-19 vaccination. Never before have we had to vaccinate this many people in such a short amount of time using new vaccine technology. Competing priorities and resource constraints have led to the misallocation of vaccines and rising concerns about equity and vaccine safety.[1,2] For now, while demand outstrips supply, the most pressing priority is addressing supply chain issues. But as vaccine rollout continues, the priority will soon shift to addressing people's barriers to vaccination, the predominant challenge to achieving COVID-19 community immunity—estimated to be around 80-90%.[3] These barriers to COVID-19 vaccine uptake are well-documented. It's widely known that community norms and concerns about safety, side effects, efficacy, rushed approval, among others, make people less likely to get vaccinated.

Therefore, it's not a question of what the barriers are: the key question is which barriers we should focus on in the limited amount of time we have due to the unique nature of this pandemic.

This question appears to be a simple one, but it has proven difficult to answer for time and resource crunched policymakers, health

[1] Hopkins, Jared S. et al. "Behind America's Botched Vaccination Rollout: Fragmented Communication, Misallocated Supply." The Wall Street Journal, February 18, 2021. https://www.wsj.com/articles/behind-americas-botched-vaccination-rollout-fragmented-communication-misallocated-supply-11613663012

[2] Gilbert, Keon L. and Rashawn Ray. "A colorblind vaccine approach isn't good enough. THe US needs racial equity." The Guardian, February 9, 2021. https://www.theguardian.com/commentisfree/2021/feb/09/vaccine-gerrymandering-coronavirus-racial-equity

[3] Allen, Jonathan. "Fauci Says Herd Immunity Could Require Nearly 90% to Get Coronavirus Vaccine." Reuters, December 24, 2020. https://www.reuters.com/article/health-coronavirus-usa-idUSL1N2J411V.

officials, and other decision makers charged with increasing vaccine uptake. We need to identify segments of the U.S. population with different vaccination intentions to understand who we should prioritize, when to target them, and how to ensure high uptake among priority groups and the general population. We at Surgo Ventures conducted a survey of 2,747 U.S. adults from December 20, 2020 to January 4, 2021 to do just that.

Previous studies have focused on demographic groups—finding that women, essential workers, Black individuals, rural residents, Republicans, and lower-income individuals tend to express lower likelihood of vaccine uptake. But these groups are not monoliths and targeting solely based on demographics misses the underlying barriers shaping an individual's intention.

Another approach is to focus on different beliefs and structural barriers to vaccination. Many of our survey respondents expressed varying degrees of likelihood to get the COVID-19 vaccine, expressing a range of concerns. Respondents cite personal safety concerns (31%) as their top reason for being less likely to get the COVID-19 vaccine. Concerningly, more than 40% of all respondents believe in at least one COVID-related conspiracy theory, ranging from vaccine microchip implantation (10%) to government control (26%) to COVID-19 being man-made (27%). Respondents also report several barriers to receiving medical care including actual cost (21%), busy work schedules (17%), and a general lack of time (16%).

To deal with this once in a lifetime vaccination challenge, we need smart, targeted solutions that acknowledge that not all demographic groups are monoliths and that certain groups may have different sets of concerns around the COVID-19 vaccine. We show how psychobehavioral segmentation—a technique drawn from marketing which divides people into groups based on their behaviors, motivations, beliefs, and other factors—can create targeted solutions.[4] Our approach goes beyond parsing people solely based on demographics to look at the heterogeneous barriers that truly drive someone's intention to get vaccinated.

Our survey found that 40% of Americans are highly likely to get the vaccine, with the remaining 60% falling into four less likely segments with a variety of concerns and barriers shaping their likelihood. But by digging deeper into that 60% of Americans—specifically by prioritizing three of the

[4] Sgaier, Sema K. et al. "Time to Scale Psycho-Behavioral Segmentation in Global Development." Stanford Social Innovation Review. Fall 2018. https://ssir.org/articles/entry/time_to_scale_psycho_behavioral_segmentation_in_global_development#

five psychobehavioral segments (43% of Americans) who we identify as persuadable—we believe we can increase COVID-19 vaccine uptake to the threshold necessary to reach community immunity.

Ultimately, vaccine uptake initiatives must be designed locally, accounting for resources and context and guided by our insights into who should be targeted when. We detail a roadmap for the types of interventions to use for each segment. Essentially, to use analogy, we are providing the ingredients while the exact recipe should be guided by local context. To support local decision-makers, we suggest creating a repository of evidence-based solutions, alongside data on the effectiveness of each intervention, as valuable data-driven guidance empowering communities to rapidly reach immunity targets.

Below, we dive into key findings and opportunity areas from our segmentation analysis. See our methodology for more details on our sample and analytical approach.

Segmenting the U.S. Population Based on Underlying Barriers to Vaccination

We have identified five psychobehavioral segments of the U.S. population based on their likelihood and the numerous barriers they face for taking the COVID-19 vaccine. On one end of the spectrum we have **The Enthusiasts** who are ready and willing to get the vaccine and on the other end we have **The Conspiracy Believers** who are guided by misinformation and will not get vaccinated.

The Enthusiasts — 40% of the U.S. population. Every person in this group said they would get the vaccine as soon as it is made available to them. There are no barriers to vaccination for people in this group—in fact, the key challenge will be ensuring vaccine supply meets their demand before they lose enthusiasm, a pattern we're seeing now as people struggle to sign up.

The Watchful — 20% of the U.S. population. For this segment, social norms are important: Before they get the shot themselves, they first need to see that others in their peer group or community are getting vaccinated and having safe, positive experiences.

The Cost-Anxious — 14% of the U.S. population. For this segment, time and costs are the primary barriers to getting the vaccine. Every member of this group reports having delayed seeking care for their health in the past due to the expense. The irony: Only 28% of people in this group lack health insurance, indicating that their concerns about costs override having insurance to cover them.

The System Distrusters — 9% of the U.S. population. This group primarily believes that people of their own race are not treated fairly by the health system. Members of this group are likely to belong to, but are not exclusively, communities of color. There are multiple, complicated barriers for this segment, but most of them are related to trust in and access to a health system that has an inequitable history.

The Conspiracy Believers — 17% of the U.S. population. This segment has perceived barriers around COVID-19 vaccination that Surgo believes are simply too hard to shift in the short term. It includes people who don't believe in vaccines in general, but the primary barrier for this group is their very specific and deeply-held beliefs around COVID-19. The majority have low risk perceptions on catching COVID-19. Every person in this group believes at least one conspiracy theory.

Using a matrixed approach, we can compare the enablers and barriers across segments. For example vaccine safety is a unifying barrier across the four least likely segments while COVID-19 worry unifies the four most likely segments.

The Five Psychobehavioral Segment Profiles

	Segment % Population	Conspiracy Believers, 17%	System Distrusters, 9%	Cost-Anxious, 14%	Watchful, 20%	Enthusiasts, 40%
Key Barriers and Enablers*	Likelihood (X/10)	2.34	3.81	4.16	4.95	9.37
	Health Insurance	●	○	○	●	●
	Cost-conscious	●	●	●	●	●
	Early Adopter	●	●	●	●	●
	Conspiratorial Thinking	●	○	●	●	●
	Vaccine Safety	●	●	●	○	●
	COVID-19 Worry	●	●	●	●	●
	Trust Health System	●	●	●	●	●
Demographics, Social, and Information Profile	Who are they?**	Rural Republican	Urban Younger Lower income Essential workers Black/minority Democrat	Rural Younger Lower income Essential workers	Older Female	Older Male Higher income Democrat
	What is their community doing?	Low perceived vaccination intention Low COVID-19 risk perception Prefer alternative medicine	Low perceived vaccination intention High COVID-19 risk perception Wear masks	Low perceived vaccination intention Medium COVID-19 risk perception	Medium perceived vaccination intention High COVID-19 risk perception Wear masks	High perceived vaccination intention High COVID-19 risk perception Wear masks
	Where do they get their information?	Social Media, Fox News, Donald Trump, church	TV sources, CDC, WHO, doctors, church	TV sources, scientists, CDC, WHO, doctors	TV sources, CDC, WHO, doctors	TV sources, CDC, WHO, doctors
	Who do they seek vaccine advice from?	Doctors (44%) Family (27%) No one (18%)	Doctors (44%) Family (29%) No one (17%)	Doctors (50%) Family (25%)	Doctors (66%) Family (30%)	Doctors (70%) Family (24%)

Legend

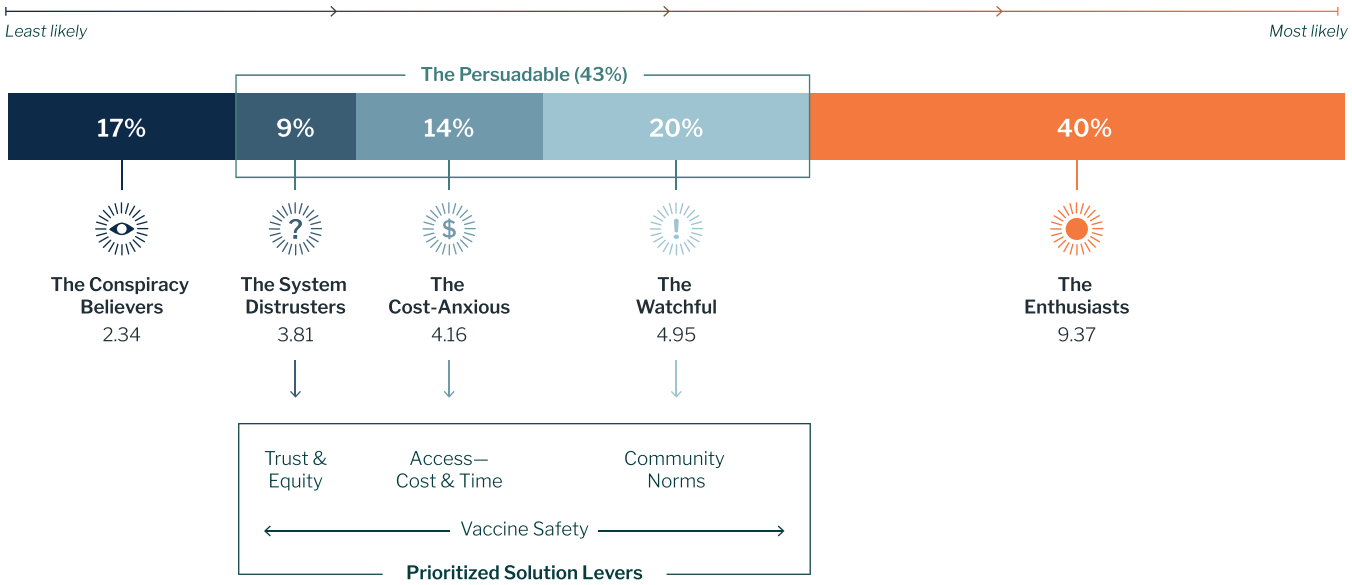
- ● Barrier
- ○ Neutral
- ● Enabler

*These categories represent the 7 variables used to conduct the cluster segmentation as outlined in the Methodology section in Annex.

**Demographic descriptions represent subgroups that are significantly overrepresented compared to the survey mean.

PRIORITIZATION

While an understanding of all five segments will equip decisionmakers with a holistic picture of the population, to maximize time and resources we recommend focusing on the **three most persuadable behavioral segments**—the Watchful, Cost-Anxious, and System Distrusters—and their barriers. These three segments make up 43% of the U.S. population which paired with the Enthusiasts (40% of population) will theoretically get us to 83% community immunity, just within the estimated 80-90% threshold.[5] We can enable the majority of the U.S. population to get vaccinated by addressing 4 barriers: community norms, access, trust & inequity, and perceptions of vaccine safety.



[5] Allen, Jonathan. "Fauci Says Herd Immunity Could Require Nearly 90% to Get Coronavirus Vaccine." Reuters, December 24, 2020. https://www.reuters.com/article/health-coronavirus-usa-idUSL1N2J411V.

Key Findings and Opportunity Areas

THE ENTHUSIASTS
9.37 Likelihood

Barriers:

The largest segment (40% of the population) faces either logistical barriers to getting vaccinated or are not eligible.

Every person in this group said they would get the vaccine as soon as it is made available to them. There are no barriers to vaccination for people in this group and they have strong positive normative expectations, with 90% believing more than half of their communities will get vaccinated. In fact, the key challenge will be ensuring vaccine supply meets their demand before they lose enthusiasm as they battle the logistics of signing up. Evidence shows that the tipping point for social change is 25% of the population; therefore it will likely set the social norm of vaccination.[6] We need to capitalize on the enthusiasm in this group of front-runners by making it as easy as possible for them to get the vaccine, enabling them to establish vaccination as a positive social norm.

Solution Areas:

Make it easy for them to get the vaccine.

Streamline the process to sign up for the vaccine and host vaccine clinics in accessible locations. Leverage text reminders to nudge early adopters to get their first and second doses of the vaccine, such as letting them know that the vaccine is "reserved" for them.[7] In the early stages of roll out with priority tiers, open eligibility where and when possible to avoid wasting doses.

Make it visible that they've been vaccinated.

Harness the enthusiasm of this group to promote vaccination in their communities and establish vaccination as a positive social norm to influence other segments. This can take the form of a digital or in-person symbol that indicates a person has received the vaccine, texting friends to get the vaccine 15 minutes after getting the shot, or sharing their experience on social media.

[6] Centola, Damon, Joshua Becker, Devon Brackbill, and Andrea Baronchelli. "Experimental Evidence for Tipping Points in Social Convention." Science 360, no. 6393 (June 8, 2018): 1116–19. https://doi.org/10.1126/science.aas8827.

[7] Milkman, Katherine L., Mitesh S. Patel, Linnea Gandhi, Heather Graci, Dena Gromet, Hung Ho, Joseph Kay, et al. "A Mega-Study of Text-Based Nudges Encouraging Patients to Get Vaccinated at an Upcoming Doctor's Appointment." SSRN Scholarly Paper. Rochester, NY: Social Science Research Network, January 27, 2021. https://papers.ssrn.com/abstract=3780267.

Barriers:

The second largest group are "The Watchful" (20%) who want to wait and see before getting the vaccine.

They are primed to get the shot, and have no structural barriers—they just don't want to be the first to get it. Nearly a fifth of this group is concerned about short and long-term side effects (19% and 23% respectively). They have positive norms around mask wearing. Motivating this group to get vaccinated sooner will require leveraging social norms to both emphasize the responsibility to get vaccinated and assuage concerns around side effects.

Solution Areas:

Make it visible that others are vaccinated or have positive intent to be vaccinated.

Encourage sharing of stories among members of their communities and networks like them (e.g. older female) who have been vaccinated—stories are often more powerful than numbers. Stories should be authentic and deal with initial hesitancy if any while emphasizing safe, positive experiences with vaccination. Complement stories with vivid data visualizations that transparently show vaccine progress in terms of people signing up or in terms of waiting lists to establish positive norms around intent to vaccinate. Use digital or non-digital signals (stickers, pins, bracelets) to signal vaccination. [8]

Capitalize on positive social norms.

This group is already high mask wearing, showing an intent to comply with social norms—we can capitalize on this protective behavior by highlighting similar altruistic reasons for vaccination.

Have doctors assuage concerns around side-effects.

Given that this group has the largest number seeking advice from doctors, leverage them as messengers to motivationally interview patients and address specific concerns.

Allow for uncertainty through a "vaccinate later" option.

Evidence from behavioral science suggests that people prefer moderate or "compromise" options over their extreme counterparts.[9] Capitalize on this behavioral insight by adding a "vaccinate later" option to the scheduling menu, enabling the Watchful to opt-in for down the road. [10]

[8] Wood, Stacy, and Kevin Schulman. "Beyond Politics — Promoting Covid-19 Vaccination in the United States." New England Journal of Medicine 384, no. 7 (February 18, 2021): e23. https://doi.org/10.1056/NEJMms2033790.

[9] Ibid.

[10] Ibid.

Barriers:

The financial and time cost associated with vaccination impacts the likelihood of our "Cost-Anxious" group (14% of the population).

For this segment, time and monetary costs are the primary barriers to getting the vaccine. Every member of this group reports having delayed seeking care for their health in the past due to the expense, with smaller but still sizable proportions having delayed care because of work (40%) and time (35%). Cost-anxious respondents think the COVID-19 vaccine will cost a median $100—$80 more than their median willingness to pay. The irony: Only 28% of people in this group lack health insurance, indicating that their concerns about costs override having insurance to cover them.

Solution Areas:

Prioritize communication from credible messengers that vaccination is totally free.

Enlist doctors, insurance companies, employers, healthcare systems and visible figures, to counter this perceptual barrier to vaccination through clear and credible messaging about the "free" aspect and what they are entitled to. Use social media to amplify the reach of this message, for example, to rural populations. As having to enter insurance information on registration may counter the belief that the vaccination is free, be sure to explain why such information is being collected (e.g. for companies to record vaccinations).

Bring vaccines to people.

Increasing accessibility in this way could have a huge impact on this group which is the least optimistic about their ease of getting the vaccine—only 62% think it will be easy to get the vaccine when it is available to them. Eliminate structural barriers by holding vaccination clinics in a variety of non-healthcare locations that people go to regularly—at workplaces, religious venues, daycares, the supermarket, neighborhoods, bars, and restaurants. Deploy mobile units, particularly in rural areas. [11]

Offer employees paid time off to get the vaccine.

Reduce barriers related to work, time, and cost by granting employees paid time off specifically to get both doses of the vaccine and recover from the expected physical response.

Make the process easy.

Remove "sludge" in the registration process by eliminating information that is not critical and pre-filling information. For those unable to register on their own, provide access to volunteer services or a call-center to help with the information. [12] Send text reminders before appointments. Automatically register individuals for their second dose.

[11] Staff, Reuters. "Shots Bar: Israelis Offered Drinks on the House with Their Vaccine." Reuters, February 19, 2021. https://www.reuters.com/article/us-health-coronavirus-israel-vaccination-idUSKBN2AI2SN.

[12] Thaler, Richard. "Nudge, not sludge." Science. August 3, 2018. https://science.sciencemag.org/content/361/6401/431.

THE SYSTEM DISTRUSTERS
3.81 Likelihood

Barriers:

A critical though smaller segment (9% of the population) harbors deep concerns about the safety of the vaccine for their racial or ethnic group.

Notably, Black and minority respondents make up the majority of individuals in our "System Distruster'' segment. Respondents in this group have had negative experiences with health services. Efforts to address the concerns of this group will cascade across the entire population. Their well-documented trust and access barriers necessitate a mix of interventions to address them.

Solution Areas:

- Listen and learn from community concerns.

  Organize listening sessions and prioritize solutions proposed by community members to tailor the vaccination experience. To better build trust, these sessions—and all other messaging—should be available in the preferred language(s) of the community.

- Partner with trusted community organizations, providers, etc. and ensure thoughtful location choices for vaccines.

  This group has low expectation that community members will get the vaccines and so, focusing on getting members vaccinated is key. Trusted locations in the community, e.g. local pharmacies, may help increase trust and convey the effort made in outreach to the community, thereby increasing intent to get vaccinated. Enlist community volunteers so that providers better reflect the community they serve.

- Make it visible that the community is getting vaccinated.

  As this group has low expectation that community members will get the vaccine, making such stories visible is critical. Enrolling vaccine ambassadors from within the community can also increase visibility.

- Track and illuminate efforts for equity in vaccine distribution.

  Be transparent about equity, both tracking numbers and sharing them with the community. Equity is not only about the numbers vaccinated, but also about seemingly innocuous choices such as which vaccines are being offered in the community. Ensure that community concerns are reflected in the data tracked and shared.

Barriers:

Approximately 17% of the U.S. population believes in several conspiracy theories.

The primary barrier for people in this group is their very specific and deeply-held beliefs around COVID-19—fortunately not all individuals in this group are anti-vaccine. These include the following beliefs: COVID-19 is exploited by the government to control people (84%); COVID-19 was caused by a ring of people who secretly control world events (65%); and microchips are implanted with the vaccine (36%). This group's vaccine intention may be too hard to shift toward greater uptake in the short term to warrant scarce time and effort, especially since evidence has shown that countering misinformation is a complex process liable to backfiring.[13]

Solution Areas:

Enlist figures trusted by this group as vaccine ambassadors.

Given that 84% of this group believe that the government is exploiting COVID-19 to control people, look to non-political figures as vaccine ambassadors to mobilize this group. These can include doctors and scientists, trusted respectively by 50% and 32% of this group, or religious leaders, who are best positioned with the 9% who say the vaccine is against their religious beliefs.

Think outside the box.

Solutions that swayed others may not work with this group. Misinformation is "sticky," continuing to exert influence even after being debunked. The best approach is to lead with the facts, explain how the conspiracy theory is misleading, and end by reinforcing the facts again.

Prevent conspiracy theories from taking wider hold in the population.

This can be achieved by simply warning people that they are misinformed or by encouraging people to evaluate information they receive more critically. [15]

[13] Chan, Man-pui Sally, Christopher R. Jones, Kathleen Hall Jamieson, and Dolores Albarracín. "Debunking: A Meta-Analysis of the Psychological Efficacy of Messages Countering Misinformation." Psychological Science 28, no. 11 (November 1, 2017): 1531–46. https://doi.org/10.1177/0956797617714579.

[14] Lewandowsky, Stephan, John Cook, and Doug Lombardi. "Debunking Handbook 2020." Databrary, 2020. https://doi.org/10.17910/B7.1182.

[15] Ibid.

Vaccine safety is a universal concern across all non-Enthusiast segments.

These safety concerns include beliefs about the vaccine testing and approval process and related concerns around side-effects. Over 74% of respondents in these segments thought they had a moderate to high chance of short-term vaccine side effects, and 71% thought they had a moderate to high chance of long-term vaccine side effects.

Solution Areas

Reframe the language used from "side effects" to "expected reactions."

Language is powerful. Promote communications and encourage clinicians to use language that normalizes minor side effects as expected reactions that demonstrate that the vaccine has stimulated the body's immune reaction. Similarly, severe reactions to the vaccine, such as hyperimmune responses, should be referenced as "adverse events," verbally distinguishing them from safe "expected reactions."

Communicate the reality of the vaccine experience.

Few Americans get the flu vaccine and, therefore, many haven't had a vaccination in years and don't remember what the experience is like. Prepare people for the possibility of post-vaccination discomfort with honest messaging around known expected reactions and their duration, making sure to contextualize the short-term discomfort with long-term gain.[16] Preempt discomfort by offering people 1-2 paid days off to recover after each dose of the vaccine. Follow-up with people after vaccination and give them a number to call to report any adverse reactions.

Explain in simple terms that the process was not shortchanged.

Acknowledge the concerns individuals have about the speed of the vaccine approval process. Describe in simple terms why the vaccine process is credible, highlighting that the reduced timeline resulted from the removal of bureaucratic rather than clinical checkpoints.

Get people to think about the consequences of not getting vaccinated.

Leverage the power of anticipated regret to make salient the cost of not getting vaccinated compared to the costs of side-effects. This can be done through reflection on what could happen if they were unvaccinated or prompting them to think about how they would feel if they did not get vaccinated and later caught COVID-19 or passed it on to others.

[16] Wood, Stacy, and Kevin Schulman. "Beyond Politics — Promoting Covid-19 Vaccination in the United States." New England Journal of Medicine 384, no. 7 (February 18, 2021): e23. https://doi.org/10.1056/NEJMms2033790.

ANALYSIS DEEP DIVE:

Black and African American Respondents

Because of well-documented vaccine concerns amongst Black and African Americans, we dove deeper into the drivers of lower vaccine likelihood for this group. Black respondents have been disproportionately impacted by the COVID-19 pandemic. Compared to other survey respondents, Black respondents report more experience with COVID-19, especially extreme cases or its adverse effects: they are more likely to have been tested, tested positive, been hospitalized, or experienced long-term medical problems due to COVID-19, and they are more likely to know someone who was hospitalized or with long-term medical problems.

Yet, Black respondents report the lowest likelihood of getting the COVID-19 vaccine of any racial/ethnic group: only 26% say they would get it in the first three months it was available. On average, Black respondents have the lowest self-reported vaccine likelihood out of all racial/ethnic groups in the U.S., with a likelihood of only 4.7/10 compared to likelihoods of 5.8 for Latinx respondents, 6.4 for white respondents and 8.8 for Asian respondents.

Mirroring results from our full general population survey, Black respondents face a myriad of structural and perceptual barriers to healthcare.

Structural barriers:

Black respondents face numerous structural barriers to healthcare, **with one-fifth reporting that they delayed medical care in the past year due to cost and lack of transportation to healthcare facilities.**

Distrust in systems:

Compared to non-Black respondents, Black respondents were **less likely to agree that they are treated fairly in healthcare settings (only 52% agreed, vs. 94% of white respondents)** and that the **US government can be trusted to look out for their interests (15% agreed, vs. 39% of white respondents).**

Concerns about COVID-19 vaccine safety, effectiveness, and side-effects:

Black respondents are more likely than respondents of other races to agree that **they worry about having a bad physical reaction to the vaccine (47% vs. 38%),** and that **COVID-19 vaccine testing is too rushed (50% vs. 39%**). They are also **less likely to agree that the vaccine will be carefully tested to make sure that it is safe and effective for people of their race and ethnicity (31% vs. 47%)**.

Our segmentation results show that it would be a mistake, however, to treat Black Americans, and other minorities by extension, as a monolith. Black respondents fall across all five psychobehavioral segments. In particular, **40% of Black respondents fall into the System Distrusters** segment, where individuals have expressed the belief that members of their race are not treated fairly in the health system. An additional **20% fall into the Enthusiast category** and **17% are Watchful**. To increase uptake in Black and African American communities, we suggest a three-pronged approach:

- Listening and addressing valid concerns about vaccine safety among System Distrusters through trusted community leaders
- Hosting vaccine clinics in Black communities to get Enthusiasts vaccinated
- Convincing the Watchful to be vaccinated by highlighting the vaccinations of Enthusiasts in their community

Recent reports have highlighted that white, wealthy individuals have been getting a disproportionate share of vaccinations even in Black and Latinx communities.[17] Other efforts such as door-to-door vaccinations and calling people in underserved zip codes to schedule appointments can hopefully attempt to rectify these inequities. We also need to invest long-term to right the historical wrongs of our health system by training more Black doctors and investing in public health centers in Black communities.

Segment	% of all Black respondents	% Black respondents per segment	% all respondents
 System Distrusters	40%	52%	11%
 Enthusiasts	20%	7%	37%
 Watchful	17%	12%	20%
 Conspiracy Believers	11%	9%	17%
 Cost-Anxious	13%	12%	15%

[17] Goodnough, Abby and Jan Hoffman. "The Wealthy Are Getting More Vaccinations Even in Poorer Neighborhoods." The New York Times. February 4, 2021. https://www.nytimes.com/2021/02/02/health/white-people-covid-vaccines-minorities.html

Solutions

To summarize solution themes across segments and prioritize, we recommend focusing on four main solution strategies that encompass the three most persuadable behavioral segments—the Watchful, Cost-Anxious, and System Distrusters—and their barriers. We derived inspiration from solutions that have been proposed by behavioral scientists and communities.[18, 19, 20, 21] These solutions are a starting point—we need to amplify efforts, tailor them to address segment-specific barriers and test and learn what works in context.

[18] Chan, WHO Technical Advisory Group on Behavioral Insights and Sciences for Health. "Behavioral Considerations for Acceptance and Uptake of COVID-19 Vaccines." October 2020. https://apps.who.int/iris/bitstream/handle/10665/337335/9789240016927-eng.pdf?sequence=1&isAllowed=y.

[19] Wood, Stacy, and Kevin Schulman. "Beyond Politics — Promoting Covid-19 Vaccination in the United States." New England Journal of Medicine 384, no. 7 (February 18, 2021): e23. https://doi.org/10.1056/NEJMms2033790.

[20] Milkman, et al. "A Mega-Study of Text-Based Nudges Encouraging Patients to Get Vaccinated at an Upcoming Doctor's Appointment." SSRN. February 19, 2021. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3780267.

[21] Bloomberg Philanthropies. "COVID-19 Vaccine Toolkit for Mayors." Bloomberg Cities. https://bloombergcities.jhu.edu/sites/default/files/2021-02/Vaccine%20Toolkit%20Public%20Engagement.pdf.


Enthusiasts


Watchful


Cost-Anxious


System Distrusters


Conspiracy Believers

Strategy	Target Segments	Tactics	Key Touchpoints
Create positive descriptive norms around vaccination	  	Provide vaccination badges and other visible material indicating that one is vaccinated	Online: Social Media Badges Offline: car stickers, physical badges, wrist-bands - offer at doctor's clinics
		Encourage stories of the vaccinated, particularly emphasizing equity and rep-resentation in narratives for communities of color	Online: digital & social media Offline: Town halls, religious centers
		Host data dashboards tracking vaccine intent and progress; particular focus on equity by highlighting % in minority groups being vaccinated	Online: state and county health sites Doctors offices sending out key updates
		Offer vaccination at local sites and workplaces and in trusted community locations to show the community is getting vaccinated	Workplaces and other local community sites Religious Venues
		Emphasize altruistic motivations (protecting family and community) through messages on community responsibility to get vaccinated; for the Watchful segment, make salient their mask wearing behavior	Social media Town halls
Reduce cost & time (perceived or actual) barriers	 	Promote credible communication that vaccination is free & address any concerns	Insurance companies Doctors Mass media—TV
		Offer vaccination at easy-to-access, non-healthcare sites	Local community sites, workplaces or other locations close to essential worker workplaces—daycares, supermarkets, churches, local pharmacies and mobile units
		Make the process easy e.g. Offer default appointments; make appointment process easy (pre-fill in information), offer volunteer help to fill out an appointment	Have doctor's offices call to set up appoint-ments Registration at churches & workplaces Send text reminders
		Offer paid time off to get the vaccination & deal w/ side-effects	State/county health departments to work with employers


Enthusiasts


Watchful


Cost-Anxious


System Distrusters


Conspiracy Believers

Strategy	Target Segments	Tactics	Key Touchpoints
Increase trust in the system by demonstrating equity		Host listening sessions w/ community members to understand concerns & address them	Town halls and "Live" sessions on social media Churches & religious leaders Doctor's offices
		Use vaccine ambassadors in places that are frequented—barbershops, hair salons—to hold conversations	Online: local doctor & nurse influencers e.g. on TikTok Offline: Professionals from Medical colleges situated in historically Black and other minority areas
		Ensure vaccination information is in communities' preferred languages	Posters, phone messages, texts
		Set up vaccination clinics in non health-care settings that are trusted and frequented by the community with trusted local providers from the same community	Churches and religious venues Cultural community centers Barber shops Door-to-door efforts
		Set up community dashboards to track equity in vaccine distribution	Online: State and county health department websites Offline: Local trusted places— pharmacies, churches, fire stations
Address concerns on vaccine safety	   	Reframe language from "side effects" to "expected reactions" to normalize post-vaccination discomfort	Protocol for doctors & healthcare workers
		Set expectations for vaccination experience through storytelling	Social Media Doctors Churches & religious leaders
		Explain process through analogies to help people understand the relative level of risk of vaccination	All media
		Get people to think about the costs of not getting vaccinated (anticipated regret) to make salient the trade-offs involved	Media Community small groups discussions

THE WAY FORWARD

Solutions must be comprehensive yet localized

A single idea or intervention is not likely to address the problem comprehensively—we need a portfolio of solutions that are integrated across communication, community, and policy and that address the perceptual and contextual barriers we have found in this report. At the same time, we know that human behavior is highly context-driven and that the best solutions are localized ones, drawing both on the wisdom of the community and localized data. Stakeholders need to engage the right set of solutions and experiment to find the optimal mix of offline and online channels, depending on the key segments in their areas, their barriers & enablers and ways to reach them. To get to this portfolio, decision makers must have access to a suite of ideas, potentially through a repository of solutions that is easily shared.

Stakeholders from all corners of society need to promote a cohesive message

Society needs to collectively normalize and promote vaccination, mobilizing in a similar manner to getting out the vote. We need traditional and non-traditional stakeholders from policy makers to celebrities, religious leaders to private businesses, social media companies to advocacy organizations emphasizing the importance of vaccination. Every organization has a responsibility to encourage their employees and communities to get their shots.

Monitor, Evaluate, Replicate

As the vaccine rollout continues and virus variants emerge, the distribution of these segments will change—hopefully with more of the population shifting toward the Enthusiasts. We plan to monitor the national and geographic distributions of these segments to inform structural and messaging interventions over the next several months. It will be important to understand if these segments represent a permanent state or shifting traits an individual may have. As we monitor, we hope to observe movement within these segments with the population shifting toward higher vaccination likelihood. We also plan to design, test, and evaluate solutions through community human-centered design training and social media experimentation before scaling up. We invite you to do the same and share your findings with us toward the creation of a public database of local solutions that can inspire efforts in other communities.

We believe that with precise, parallel efforts across the country we can rapidly reach community immunity and put the COVID-19 pandemic behind us.

ANNEX - METHODOLOGY

The final survey sample consisted of 2,747 U.S. adults older than 18 surveyed from December 21, 2020 to January 4, 2021. Data was collected using a probability-based household panel (NORC AmeriSpeak). The survey was conducted online and over the phone and in both English and in Spanish. We oversampled Black and Latinx respondents (see Table 1). The sample is representative of the U.S. population and weighted to population benchmarks

Analyses

We calculated descriptive statistics based on our full survey population. In addition, a linear regression model was used to estimate the effects of possible determinants of vaccine likelihood for survey respondents. The dependent variable of the model is the self-reported vaccine likelihood score with a scale of 0 (extremely unlikely to get vaccinated) to 10 (extremely likely to get vaccinated). Various potential enablers and barriers of vaccine likelihood were included in the model, including those that are related to the structural barriers and enablers of COVID-19 vaccination, beliefs and perceptions about COVID-19 pandemic and COVID-19 vaccines, sociodemographic factors, influencers and sources of information of the respondents, outcome expectation of COVID-19 and COVID-19 vaccines, social norms on COVID-19 vaccination, health-seeking and flu-vaccination behaviors, and knowledge about COVID-19 vaccine and the COVID-19 pandemic. Heteroskedastic-robust errors were used, and the variance inflation factor (VIF) of the regressors in the model suggest low level of multicollinearity.

A k-medoid partitioning around medoids (PAM) clustering algorithm (with a Gower distance metric) was used to identify clusters of individuals that differed on the following seven variables:

These variables were selected for segmentation based on their relationship to self-reported COVID-19 vaccine likelihood observed in predictive models and their actionability in order to identify population groups and effective interventions. After segments were defined, they were then profiled on COVID-19 vaccine uptake likelihood as well as a variety of demographic and other characteristics. Cluster solutions from 3 to 8 groups were explored. The 5-cluster solution was considered most actionable based on differences between segments in vaccine likelihood barriers and perceptions and is reported here.

1. Health insurance status

   whether an individual had health insurance

2. Cost barriers to medical care

   whether an individual had delayed medical care in the past year because of cost

3. Degree to which an individual agreed the COVID-19 vaccine was unsafe

4. Degree of worry about COVID-19

5. Early adoption

   whether an individual said they would get COVID vaccine in first three months it is offered

6. Conspiratorial belief score

   0-3 score; 1 point each for agree with the following statements: vaccine would insert a tracking chip; COVID-19 is caused by ring of people who manipulate world events; COVID-19 is being exploited by government to control people

7. Perception of racial fairness in medical system

   agreement with statement that people of your race are treated fairly in a healthcare setting

Percent of individuals in each cluster represents the population-weighted proportion of respondents in each segment. Below is the demographic makeup of the sample.

Table 1. Sociodemographics of our sample

Group	Sample Size
Total	2,747
Gender	
Man	1,256
Woman	1,371
Non-binary	39
Other/prefer not to answer	60
Geographic Region	
Northeast	404
Midwest	672
South	999
West	672
Race/Ethnicity	
Latinx	520
White	1,627
Black, African or African American	393
Asian, Native Hawaiian, or Pacific Islander	61
2+ races, non-Hispanic	104
Other, non-Hispanic	42
Party Identification	
Democrat	1,037
Independent	756
Republican	775
Other	152

Please cite this report as:
Surgo Ventures (2021) The Challenge of our Time: Achieving High Vaccination Coverage during the COVID-19 Pandemic. https://surgoventures.org/resource-library/the-challenge-of-our-time-achieving- high-vaccination-coverage-during-the-covid-19-pandemic

Acknowledgements:
We are grateful for expert feedback and comments on this work from (in alphabetical order) Janell Byrd-Chichester (and team at NAACP), Heidi Larson and the Vaccine Confidence Project, Michael Hallsworth and BIT, Vicki Freimuth, Sandra Quinn, Stephen Phillips and the COVID Collaborative, Megan Ranney, and Stephen Thomas.

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Version 1, Published February 25, 2021